

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Akira FUNAKI et al.

Examiner: Irina Krylova

Serial No.: 10/594,126

Group Art Unit: 1796

Filed: September 25, 2006

For: METHOD FOR PRODUCING TRANSPARENT POLYPROPYLENE
BASED SHEET AND TRANSPARENT POLYPROPYLENE

REQUEST FOR REFUND

Mail Stop 16
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Further to applicants filing of a Reply along with a corrected PTO/SB/08b Form on November 6, 2009 in the above-identified application (a copy of which is attached hereto), applicants hereby request a refund in the amount of \$180.00 since no Information Disclosure Statement was filed. The Information Disclosure Statement fees charged to Deposit Account No. 13-3402 was thus not justified.

Applicants merely corrected PTO/SB/08b Form filed as explained in the Reply of November 6, 2009, as follows:

"Corrected PTO/SB/08b Form

A corrected PTO form from a previously filed IDS is attached. The reference C2 was **already considered** (see references considered by Examiner), but the **citation contained an error**. The provided publication number and publication date were actually application number and date. The attached form merely corrects this clerical error. Applicants courteously request that this form be initialed so that the record is free from this clerical error."

Therefore, it is respectfully requested that \$180.00, be refunded to counsel's Deposit Account No. 13-3402.

Respectfully submitted,

/Csaba Henter/

Csaba Henter, Reg. No. 50,908
Attorney/Agent for Applicants

MILLEN, WHITE, ZELANO
& BRANIGAN, P.C.
Arlington Courthouse Plaza I
2200 Clarendon Boulevard
Suite 1400
Arlington, VA 22201
Telephone: (703) 243-6333
Facsimile: (703) 243-6410

Attorney Docket No.: KINOS-0002

Filed: March 8, 2010

COPY

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : **Confirmation No: 7075**
Akira FUNAKI et al : **Group Art Unit.: 4131**
Serial No.: 10594,126 : **Examiner: KRYLOVA, Irina**
Filed: September 25, 2006 :
Title: **METHOD FOR PRODUCING TRANSPARENT POLYPROPYLENE BASED
SHEET AND TRANSPARENT POLYPROPYLENE BASED SHEET**

REPLY

Mail Stop: AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SIR:

In response to the Final Office Action dated August 6, 2009, and in view of the interview discussed below, please consider the following.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-10. (Canceled)

11. (Previously Presented) A manufacturing method of a transparent polypropylene based sheet that uses a resin composition containing: 70 to 99.8 mass% of a polypropylene resin (a) having an isotactic pentad fraction of 0.85 to 0.99 and a melt flow rate (MFR) of 0.1 to 30g/10min; and 30 to 0.02 mass % of a metallocene-type ethylene- α -olefin copolymer (b) that is produced using a metallocene catalyst and having a density of 880 to 920 kg/m³ and a melt flow rate (MFR) of 1 to 30g/10 min, the method comprising:

a melt extrusion step for melt-extruding the resin composition into a sheet-like shape;

a cooling step for quenching the melt-extruded sheet-like resin composition to obtain a sheet-like article; and

a heat treatment step for heat-treating the quenched sheet-like article at a heat treatment temperature of 100 to 220°C.

12. (Previously Presented) The manufacturing method according to claim 11, wherein the polypropylene resin (a) and the metallocene-type ethylene- α -olefin copolymer (b) do not contain a nucleating agent.

13. (Previously Presented) The manufacturing method according to claim 11, wherein the cooling step includes at least one of:

quenching the melt-extruded sheet-like resin composition by allowing the sheet-like resin composition to pass through a slit through which cooling water flows; and

quenching the melt-extruded sheet-like resin composition by allowing the sheet-like resin composition sheet to travel between and in contact with a cooling roller and an endless belt.

14. (Previously Presented) The manufacturing method according to claim 12, wherein the cooling step includes at least one of:

quenching the melt-extruded sheet-like resin composition by allowing the sheet-like resin composition to pass through a slit through which cooling water flows; and

quenching the melt-extruded sheet-like resin composition by allowing the sheet-like resin composition sheet to travel between and in contact with a cooling roller and an endless belt.

15. (Previously Presented) The manufacturing method according to claim 11, wherein, in the heat treatment step, front and back surfaces of the sheet-like article are held with a metallic endless belt and/or a metallic roller to heat the sheet-like article, the metallic endless belt and/or the metallic roller having a mirror-finished surface.

16. (Previously Presented) The manufacturing method according to claim 12, wherein, in the heat treatment step, front and back surfaces of the sheet-like article are held with a metallic endless belt and/or a metallic roller to heat the sheet-like article, the metallic endless belt and/or the metallic roller having a mirror-finished surface.

17. (Previously Presented) The manufacturing method according to claim 13, wherein, in the heat treatment step, front and back surfaces of the sheet-like article are held with a metallic endless belt and/or a metallic roller to heat the sheet-like article, the metallic endless belt and/or the metallic roller having a mirror-finished surface.

18. (Previously Presented) The manufacturing method according to claim 14, wherein, in the heat treatment step, front and back surfaces of the sheet-like article are held with a metallic endless belt and/or a metallic roller to heat the sheet-like article, the metallic endless belt and/or the metallic roller having a mirror-finished surface.

19. (Cancelled)

20. (Cancelled)

21. (Previously Presented) The manufacturing method according to claim 11, wherein the resin composition contains 5 to 25 mass % of a metallocene-type ethylene- α -olefin copolymer (b) that is produced using a metallocene catalyst and having a density of 880 to 920 kg/m³ and a melt flow rate (MFR) of 1 to 30g/10 min.
22. (Previously Presented) The manufacturing method according to claim 11, wherein the resin composition contains 5 to 30 mass % of a metallocene-type ethylene- α -olefin copolymer (b) that is produced using a metallocene catalyst and having a density of 880 to 920 kg/m³ and a melt flow rate (MFR) of 1 to 30g/10 min.
23. (Previously Presented) The manufacturing method according to claim 11, wherein the resin composition contains 3 to 30 mass % of a metallocene-type ethylene- α -olefin copolymer (b) that is produced using a metallocene catalyst and having a density of 880 to 920 kg/m³ and a melt flow rate (MFR) of 1 to 30g/10 min.
24. (Previously Presented) The manufacturing method according to claim 11, wherein the transparent polypropylene based sheet has an impact resistance at -5°C of 2000J/m or higher.
25. (Previously Presented) The manufacturing method according to claim 11, wherein the resin composition contains 70 to 97 mass% of a polypropylene resin (a) having an isotactic pentad fraction of 0.85 to 0.99 and a melt flow rate (MFR) of 0.1 to 30g/10min.
26. (Previously Presented) The manufacturing method according to claim 11, wherein the resin composition contains 75 to 95 mass% of a polypropylene resin (a) having an isotactic pentad fraction of 0.85 to 0.99 and a melt flow rate (MFR) of 0.1 to 30g/10min.
27. (Previously Presented) The manufacturing method according to claim 11, wherein the metallocene-type ethylene- α -olefin copolymer has a molecular weight distribution (M_w/M_n) obtained by a gel permeation chromatography method in the range from 1.5 to 4.0.

28. (Previously Presented) The manufacturing method according to claim 11, wherein heat treatment temperature is 100°C to the melting point of the polypropylene resin.

29. (Previously Presented) The manufacturing method according to claim 11, wherein the resin composition contains 75 to 95 mass% of a polypropylene resin (a) having an isotactic pentad fraction of 0.85 to 0.99 and a melt flow rate (MFR) of 0.1 to 30g/10min and 5 to 25 mass % of a metallocene-type ethylene- α -olefin copolymer (b) that is produced using a metallocene catalyst and having a density of 880 to 920 kg/m³ and a melt flow rate (MFR) of 1 to 30g/10 min.

30. (Previously Presented) The manufacturing method according to claim 29, wherein the transparent polypropylene based sheet has an impact resistance at -5°C of 2000J/m or higher.

REMARKS

The Interview

Applicants thank the Examiner and her supervisor, Vasu Jagannathan, for the interview held on October 22, 2009, and for their time, thorough attention and suggestions. The arguments below reflect the substance of the discussion during the interview.

The New Matter Rejection

As discussed and as agreed in the interview, this rejection will be withdrawn. The reasons are set forth below.

Claim recites 5-30 mass%.

Specification as admitted by the Office Action discloses 3-30 mass% and also 5-25 mass%. Both end points of the recited range are specifically recited in the application.

The rejection is based solely on no explicit recitation of 5-30 mass% being in the application.

The courts have consistently held that an applicant disclosing a range is in possession of the invention for ranges falling within that range, i.e., is in possession of narrower ranges within the broader disclosed range. See discussion in previous reply in regard to *In re Blaser et al.*, 556 F2d 534, 194 USPQ 122 (CCPA 1977) and *In re Wertheim et al.*, 541 F2d 257, 191 USPQ 90 (CCPA 1976), for example. The test is not whether the application describes the claimed limitations exactly, but whether persons of ordinary skill in the art would recognize from the disclosure that appellants invented the claimed process, including the narrower limitations, which are not literally recited in the disclosure. *Wertheim*, supra.

Accordingly, this rejection is incorrect under controlling precedents and its withdrawal is therefore respectfully requested.

Claim Rejections Under 35 USC § 103

Claims 19-20 are cancelled without prejudice or disclaimer, thereby readily rendering moot one of the rejections.

In sum, the main (although not all) issues are the following (more details can be found below regarding each):

- Only the reason for the alleged combination (transparency) is considered, and the numerous **reasons teaching away from the combination are ignored**
 - maintaining **rigidity** (a primary goal of Yamaguchi) while the secondary reference Fujimura teaches **soft and elasticity** sheet
- Yamaguchi is related to **compositions**, while Fujimura is related to **layered structures** (not compositions). One of ordinary skill in the art understands these to be completely different from each other, as substitution therebetween cannot be easily imagined, and as such would not be contemplated by one of ordinary skill in the art.
 - Fujimura **teaches away from a composition**, e.g., in paragraph 3 that when the elasticity resin which makes these ethylene a subject is processed into a sheet, transparency, surface glossiness, etc., are inferior ... also there is a fault that the surface hardness of a sheet is not enough.”
- **Comparative data over combination required.**
- **The data in application over closest prior art embodiment demonstrating significant unexpected results are not considered.**

Issue 1:

Part 1:

The Office Action in the section identified as response to arguments, particularly in the section labeled “27” provides that the reason for not reconsidering the rejections is because both references teach that a property of the sheets taught therein is transparency.

However, just because transparency is a common property among these sheets is not adequate to one of ordinary skill in the art to find the combination thereof obvious when other properties of these sheets are contrary to each other, as one of ordinary skill in the art could not reasonably be expected to ignore all other properties.

Yamaguchi clearly and explicitly identifies the goals of the sheets taught therein throughout the disclosure to be rigid and transparent. See, e.g., paragraph 6. The problems to

avoid are identified to be "rigid fall" and falling of transparency. See, e.g., paragraph 5. See also paragraph 4, teaching the "improvement method of the rigidity of a transparent polypropylene sheet ..."

Thus, in line with the teachings of Yamaguchi, one of ordinary skill in the art would have selected materials obvious for combination which would not have degraded the rigidity of the sheet.

Fujimura teaches a laminated "soft" sheet, identified as an "elasticity" sheet.

The Office Action in the section labeled "28" admits that the "addition of low density ethylene-alpha olefin will decrease the rigidity," yet maintains the rejection by arguing (without evidentiary support) that one could make variations in the content to achieve a desired rigidity. However, the goals of Yamaguchi are clearly to avoid "rigid fall" and "improvement method of the rigidity," and it would thus not be desired by one of ordinary skill in the art to add materials that would be expected to compromise these goals even if such may be somewhat offset or mitigated, although not admitted to be possible, by variations in amounts of components to achieve an acceptable product.

Part 2:

The Office Action in the section labeled "27" admits that Fujimura teaches a laminate "rather than composition." Nevertheless, the rejection is maintained on the rationale that a sheet comprising these components is transparent.

However, such a layered structure is a composite structure and is completely different from a mixture, of whose chemical properties are and would be expected by one of ordinary skill in the art to be completely different from each other, as substitution therebetween cannot be easily imagined, and as such would not be contemplated by one of ordinary skill in the art.

Such is especially so in view of Fujimura teaching the importance of the "three-tiered structure" to achieve an elasticity sheet which has high surface hardness, outstanding glossiness, transparency and pliability. See, e.g., paragraph 5.

Indeed, Fujimura teaches in paragraph 3 that "when the elasticity resin which makes these ethylene a subject is processed into a sheet, transparency, surface glossiness, etc., are inferior ... also there is a fault that the surface hardness of a sheet is not enough." Thus, this

reference appears to teach away from, e.g., mixtures as such would lead to inferior transparency, among other negative impacts.

Also, Yamaguchi appear to teach away also in at least that the comparative examples contain a random polypropylene PPR and straight chain-like low-density-polyethylene LLDPE (however, not a metallocene type polymer) and concludes in paragraph 82 that the examples according to the invention when compared to the comparatives secure transparency.

Both references point away from the desirability of combining a polypropylene resin with any type of LLDPE, including the presently claimed invention.

Issue 2:

The Office Action in paragraph 29 in response to the discussion of comparative data in the application (see the data discussed in the last reply on page 8, third full paragraph) alleged that

Composition of **Yamaguchi et al** as a single reference and the composition claimed in the instant invention are different, therefore, impact resistances of the propylene sheet of **Yamaguchi et al** and that claimed in the instant invention cannot be compared. However, since the composition of **Yamaguchi et al** in view of **Fujimura et al** is identical to the composition claimed in the instant invention, therefore, the impact resistance of the composition of **Yamaguchi et al** in view of **Fujimura et al** will obviously fall within the same ranges of the impact strength of the composition claimed in the instant invention.

This reason provided for not considering the data is contrary to well established patent practice.

Regarding the first sentence of the quoted passage, the proper comparison is to the closest prior art, which is typically an embodiment of one prior art reference. Here, the comparison was to the embodiments of the primary reference. No allegation is provided that any other prior art embodiments may be closer to the claimed invention.

Regarding the second sentence of the quoted passage, the prior art alleged to be suitable for comparison appears to be alleged to be the combination of both cited references. However, the combination is not prior art. The combination is a construct of the Office Action and is not a prior art embodiment.

Also, once combined in the manner alleged, then the composition would be identical with expectedly identical properties. If such combination would be the correct comparisons, then there would be no way one could ever demonstrate unexpected results because the combination would lead to an identical product to the one claimed having identical properties.

Clearly, this is not a proper basis for rejecting giving any weight to the data.

The data in the specification demonstrate that the present invention yields significant unexpected advantages over the closest cited prior art, i.e., Yamaguchi. Table 1 in Yamaguchi provides three working examples and two comparative examples. In the working examples, the impact resistance at 5°C is between 2100 and 2200 J/m, and at -5°C it is between 1650 and 1700 J/m. Compare these to the results in table 2 of the present application where the impact strength at 5°C is 3940 or above (e.g., ≥ 5920) J/m, and at -5°C it is between 2070 and 7050 J/m. The conditions for testing were identical in both Yamaguchi and in the present application, i.e., test load of 30 kg and 1-inch head. See paragraph 80 in Yamaguchi and paragraph 111 on page 33 of the present application. The testing machine's manufacturer was different.

Also briefly discussed in the fourth paragraph on page 8 of the last reply was the non-generation of the so-called gum-like material during the production of the sheets according to the presently claimed invention. On this topic, please consider the following additional comments.

An object of the present invention is to reduce a generation of gum-like material in manufacturing the sheet, which is neither disclosed nor hinted in Fujimura and Yamaguchi.

Such "gum-like material" is produced when extruding a mixture of non-metallocene LLDPE resin and PP resin. When a PP resin and an LLDPE resin is separately extruded (i.e. with two extruders) to produce a layered sheet as in Fujimura, no "gum-like material" is generated. Yamaguchi's invention is directed to a mixture of PP resins as discussed above, so Yamaguchi also does not face the problem of generation of gum-like material. Apparently as a result thereof, Yamaguchi is silent on the issue of the generation of "gum-like material" in comparative example 2 thereof.

In the present invention, metallocene LLDPE resin is blended into PP resin instead of typical non-metallocene LLDPE to exhibit an unpredicted advantage of restraining the generation of "gum-like material." Specifically, as described in the examples 1 to 4, of the present specification, since the metallocene LLDPE resin is blended with the PP resin, no "gum-

like material" is generated. On the other hand, in the comparative examples 1 and 3 of the present invention, since non-metallocene LLDPE resin (MORETEC V-0398CN) is blended with a PP resin, considerable "gum-like material" is generated (see Tables 1 and 2).

Blending metallocene LLDPE with PP resin is disclosed nowhere in Fujimura and Yamaguchi and no hint for preventing the generation of "gum-like material" is mentioned, which provides a significant unexpected advantage, which is in addition to the data already discussed in the previous reply.

Reconsideration is respectfully and courteously requested.

Corrected PTO/SB/08b Form

A corrected PTO form from a previously filed IDS is attached. The reference C2 was **already considered** (see references considered by Examiner), but the **citation contained an error**. The provided publication number and publication date were actually application number and date. The attached form merely corrects this clerical error. Applicants courteously request that this form be initialed so that the record is free from this clerical error.

Respectfully submitted,

/Csaba Henter/

Csaba Henter, Reg. No. 50,908
Attorney for Applicants

MILLEN, WHITE, ZELANO
& BRANIGAN, P.C.
Arlington Courthouse Plaza I
2200 Clarendon Boulevard, Suite 1400
Arlington, Virginia 22201
Direct Dial: 703-812-5331
Facsimile: 703-243-6410

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